

### **REMARKS**

Claims 20 and 43 are amended in this paper. Accordingly, claims 20-64 are now pending.

### **Claim Rejections Under 35 U.S.C. § 103**

Claims 20-64 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,914,014 to *Kartchner* [hereinafter *Kartchner*] in view of U.S. Patent No. 6,583,394 to *Araya et al.* [hereinafter *Araya et al.*]. This rejection is understood to be based on the premise that regarding claims 20 and 43, *Kartchner* discloses a demulsification arrangement to remove microwave-absorptive material from a substrate comprising a containment structure and an RF applicator delivered from the power source operatively coupled and positioned within the containment structure and comprising an antenna body defined as a waveguide. *Araya et al.* is cited as resolving the level of ordinary skill in the art and as evidence of obviousness and is asserted to teach, in Figure 4, a waveguide antenna applicator defined as slotted waveguides 12a arranged with slots perpendicular to the axis. The rejection is further understood to be based on the premise that it would have been obvious to employ such a waveguide in lieu of the cylindrical waveguide in *Kartchner*.

Applicant traverses the rejection. Claims 20 and 43 have been amended to recite that the slots are arranged so as to radiate the microwave energy over substantially less than a 360° arc outward from the RF applicator. For example, while claims 20 and 43 are not so limited, paragraph [0045] of the specification in the instant application discloses that in one particular implementation, “the slots 60 facilitate radiation of microwave energy over approximately a 135° arc outward from each group of slots 60, i.e., from each of the two parallel faces having slots formed thereon. Accordingly, the microwave energy applicator 50 radiates microwave energy over an approximately 270° range. Limiting the radiation to this range substantially eliminates destructive interference between the microwaves, resulting in a relatively uniform radiation pattern over the approximately 270° range.”

By contrast, neither *Kartchner* nor *Araya et al.* discloses limiting the radiation pattern of the energy applicator in this manner. Indeed, *Araya et al.* states at column 7, lines 11-19, that

[t]he waveguide arrangements of FIGS. 3 and 4 do not provide the uniformity of microwave power distribution required to minimize ceramic piece distortion and/or cracking at the microwave input power levels necessary for the effective firing of ceramic products such as thin-walled ceramic honeycomb structures. FIG. 5 of the drawings, on the other hand, shows a waveguide configuration of the present invention that does provide the necessary uniformity.

This lack of uniformity of microwave power distribution is addressed in the embodiment recited in claims 20 and 43 by limiting the radiation to substantially less than a 360° arc outward from the RF applicator. Accordingly, Applicant respectfully submits that claims 20 and 43 recite elements that are not disclosed or suggested by *Kartchner* or *Araya et al.*, considered singly or in combination. Thus, claims 20 and 43 are patentably distinct from *Kartchner* in view of *Araya et al.* Applicant respectfully requests that the rejection of claims 20 and 43 under 35 U.S.C. § 103(a) be withdrawn.

Claims 21-42 and 44-64 further define various features of the invention above the prior art and incorporate all of the limitations recited in claims 20 and 43, from which they respectively depend, either directly or via intervening claims of intermediate scope.

In view of at least the above reasoning, Applicant respectfully requests that the rejection of claims 20-64 under 35 U.S.C. § 103(a) as unpatentable over *Kartchner* in view of *Araya et al.* be withdrawn.

**Conclusion**

The amendments to the claims presented above are believed to place the application in condition for allowance. Applicant respectfully requests a timely Notice of Allowance.

Respectfully submitted,  
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by attorneys,

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